Model AMD-1 Automatic Air Maintenance Device Pressure Reducing Type with Field-Adjustable Pressure Regulator

IMPORTANT
Refer to Technical Data Sheet TFP2300 for warnings pertaining to regulatory and health information.

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General Description

The TYCO Model AMD-1 Automatic Air Maintenance Device is an automatic, field-adjustable, pressure reducing device. It is used to control the pressure in a dry pipe sprinkler system, preaction system, or dry pilot line system of a dry pilot actuated deluge or preaction valve.

The Model AMD-1 Device is utilized in applications where there is a compressed air (or nitrogen) source controlled at a higher pressure than the desired system pressure. Pressure sources include plant air supplies with their own automatic compressor controls or nitrogen supplies with single-stage, cylinder-mounted pressure regulators.

The Model AMD-1 Automatic Air Maintenance Device is a re-designation for the Central Model D-2, Gem Model F324, and Star Model S460.

NOTICE
The Model AMD-1 Automatic Air Maintenance Devices described herein must be installed and maintained in compliance with this document and with the applicable standards of the NATIONAL FIRE PROTECTION ASSOCIATION, in addition to the standards of any authorities having jurisdiction. Failure to do so may impair the performance of these devices.

Owners are responsible for maintaining their fire protection system and devices in proper operating condition. The installing contractor or sprinkler manufacturer should be contacted with any questions.

Technical Data

Approvals
UL and C-UL Listed
FM Approved
NYC Approved under MEA 206-02-E

Maximum Inlet Air (or Nitrogen) Supply Pressure
200 psi (13,8 bar)

Field-Adjustable Outlet Pressure Range
5 to 70 psi (0,4 to 4,8 bar)

Assembly
Major components illustrated in Figure 1 are factory assembled with galvanized steel nipples and malleable iron pipe fittings.

Operation

The By-Pass Valve in the Model AMD-1 Automatic Air Maintenance Device is opened to quickly fill the system during initial pressurization. Once the required system pressure has been reached, the By-Pass Valve is closed and the Air Supply Control Valve is left open to place the Model AMD-1 Device in automatic operation.

When there is a small leak in the system, the Pressure Regulator automatically maintains system pressure at the preset level. The 3/32 in. (2,4 mm) orifice in the Restrictor Check Valve limits the flow of air from the Pressure Regulator into the system to a value significantly less than that exhausted by the operation of a 5.6 K-factor sprinkler.

Installation

The TYCO Model AMD-1 Automatic Air Maintenance Device should be installed in the horizontal position as shown in Figure 1, as well as in accordance with the following instructions:

NOTICE
Moisture build-up can adversely affect performance. Suitable consideration must be given to the removal of excessive moisture from the compressed air supply.

1. Make connections a minimum of 1/2 in. (DN15) pipe size between the inlet air supply and the Model AMD-1 Device, as well as between the Model AMD-1 Device and the system to pressurize.
2. Place a 1/2 in. (DN15), non-spring loaded, rubber-faced, swing-type check valve between the Model AMD-1 Device and the system to pressurize. A check valve of this type is provided in the air supply trim of TYCO dry pipe and preaction valves.

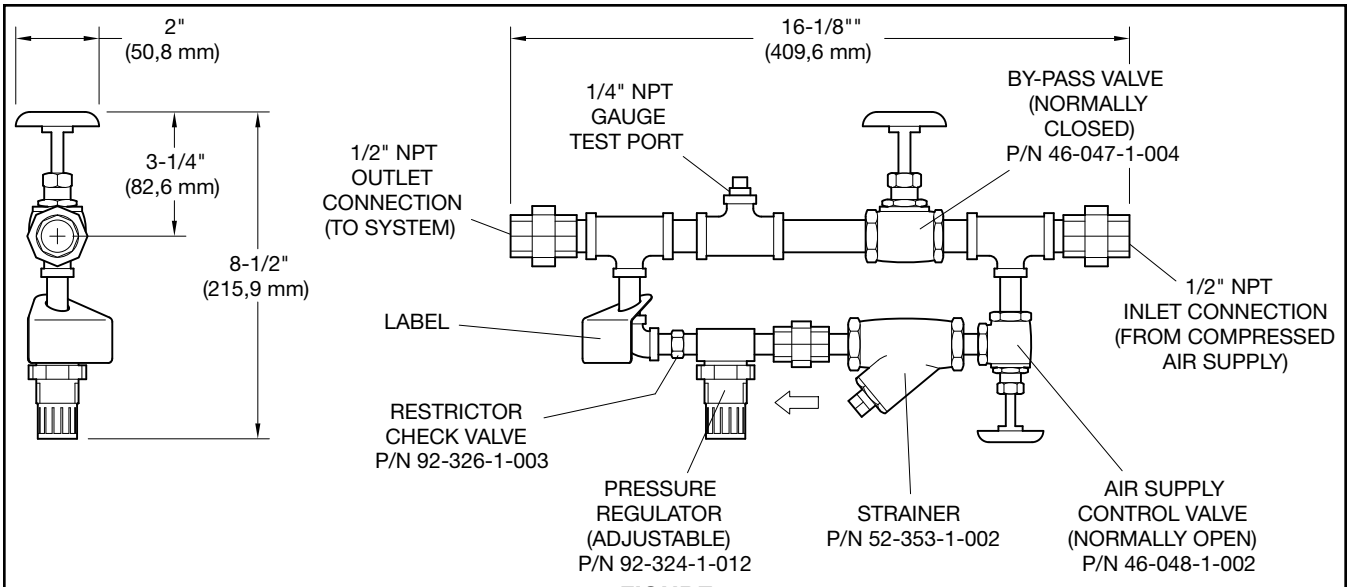

FIGURE 1
MODEL AMD-1
AUTOMATIC AIR MAINTENANCE DEVICE

Setting Procedure

The TYCO Model AMD-1 Automatic Air Maintenance Device must be set in accordance with the following instructions:

1. Determine the pressure that meets the minimum requirements of the system to pressurize.
2. Close the Model AMD-1 By-Pass Valve, and close the Model AMD-1 Air Supply Control Valve.
3. Open the control valve in the air supply trim of the system to pressurize and then reduce the system air pressure to 0 psi.
4. Close the control valve in the air supply trim of the system to pressurize.
5. Remove the system pressure gauge from its connection and temporarily install it in the 1/4 in. NPT Model AMD-1 Gauge Test Port.

CAUTION

Before removing the plug, make certain that the piping to which the Model AMD-1 Gauge Test Port is connected is at 0 psi. Failure to do so may result in personal injury or property damage.

6. Open the Air Supply Control Valve in the Model AMD-1 Device.
7. While observing the relocated pressure gauge, adjust the output pressure of the Pressure Regulator. Pull the knob out and away from the Pressure Regulator body and then slowly turn the knob clockwise, as viewed from the knob end of the Pressure Regulator, to increase pressure, and counter-clockwise to decrease pressure.

   When decreasing pressure, the air pressure must be relieved downstream of the Pressure Regulator by temporarily opening the control valve in the air supply trim of the system to pressurize, assuming that the system to pressurize is at 0 psi.

   After the Pressure Regulator is set, push the knob in and towards the Pressure Regulator body to snap it in a locked position.
8. Close the Air Supply Control Valve in the Model AMD-1 Device.
9. Return the system air pressure gauge to its normal location. Reinstall the 1/4 in. pipe plug in the Model AMD-1 Gauge Test Port. Apply pipe-thread sealant sparingly to the plug threads only.

CAUTION

Before removing the pressure gauge, make certain that the piping to which the Model AMD-1 Gauge Test Port is connected is at 0 psi. Failure to do so may result in personal injury or property damage.

10. Open the control valve in the air supply trim to the system to pressurize.
11. Open the Air Supply Control Valve in the Model AMD-1 Device.
12. Open the By-Pass Valve in the Model AMD-1 Device.
13. Close the By-Pass Valve after the system is pressurized to approximately 5 psi (0,4 bar) less than the minimum required system pressure determined in Step 1.
14. After the system pressure stabilizes, note the value and compare with the requirement. Re-adjust the Pressure Regulator, as required.

NOTICE

If the system was over-pressurized during manual fill, open a suitable connection to the system and manually reduce the pressure to the desired value. The Model AMD-1 Automatic Air Maintenance Device then automatically maintains the preset system pressure. The Restrictor Check Valve prevents the Pressure Regulator from bleeding down the system pressure.

In order to minimize the time for system trip in the event of a sprinkler operation, set the system pressure at the minimum required value.

Care and Maintenance

The TYCO Model AMD-1 Automatic Air Maintenance Device must be maintained and serviced in accordance with the following instructions, in addition to any specific requirements of the NFPA. Any impairment must be immediately corrected.

NOTICE

Before closing a fire protection system main control valve for maintenance work on the fire protection system that it controls, obtain permission to shut down the affected fire protection system from the proper authorities and notify all personnel who may be affected by this action.

It is recommended that accumulated moisture be removed from air supply moisture filtration equipment at least quarterly. More frequent inspections may be necessary in particularly humid environments.

After placing a fire protection system in service, notify the proper authorities and advise those responsible for monitoring proprietary and/or central station alarms.

Responsibility lies with owners for the inspection, testing, and maintenance of their fire protection system and devices in compliance with this document, as well as with the applicable standards of the NATIONAL FIRE PROTECTION ASSOCIATION (for example, NFPA 25), in addition to the standards of any other authorities having jurisdiction. Contact the installing contractor or sprinkler manufacturer regarding any questions.

Automatic sprinkler systems are recommend to be inspected, tested, and maintained by a qualified Inspection Service in accordance with local requirements and/or national code.

The Model AMD-1 Device must be inspected quarterly in accordance with the following instructions:

1. Verify that the By-Pass Valve is closed.
2. Close the Model AMD-1 Air Supply Control Valve and clean out the 1/4 in. Strainer located at the inlet to the Restrictor Check Valve. Be sure to reinstall the strainer screen and tighten the cap securely.
3. Open the Model AMD-1 Air Supply Valve and verify that the control valve in the air supply trim to the system to pressurize is open.
4. Verify that the system pressure is essentially the same as the previously established requirement. If not, adjust the system pressure as follows:
   - **a.** Close the system's main control valve and open the main drain valve. If the system is so equipped, close the Accelerator Control Valve.
   - **b.** Follow Steps 1 to 14 in the Setting Procedure section.
   - **c.** Slowly open the Accelerator Control Valve, as applicable.
   - **d.** Slowly open the main control valve. After water begins to flow, slowly close the main drain valve, then completely open the main control valve. The Model AMD-1 Automatic Air Maintenance Device is now ready for service.

Limited Warranty

For warranty terms and conditions, visit www.tyco-fire.com.

Ordering Procedure

Contact your local distributor for availability. When placing an order, indicate the full product name, including description and Part Number (P/N).

Model AMD-1 Device
Specify: Model AMD-1 Automatic Air Maintenance Device, P/N 52-324-2-002

Replacement Parts
Specify: (description), P/N (specify per Figure 1)

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